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## (54) Method and circuit for demultiplexing an optical signal

(57) A system and method are disclosed for demultiplexing closely spaced channels carrying optically encoded data. A composite optical signal having data channels corresponding to centre wavelengths  $\lambda_1, \lambda_2, \lambda_3, \lambda_4, \dots, \lambda_n$  are separated into two composite optical signals of first of which comprises data channels corresponding to centre wavelengths  $\lambda_1, \lambda_3, \dots, \lambda_n$  and a second which comprises data channels corresponding to centre wavelengths  $\lambda_2, \lambda_4, \dots, \lambda_{n-1}$ , wherein adjacent channels centre wavelengths are separated from one another by a distance "d". A periodic multi-cavity Fabry-Perot etalon having a free spectral range of "2d" is coupled to a circulator for launching an input beam. The first of the two composite optical signals carrying channels 1, 3, ... n is reflected from the input port of the etalon and the second of the of the two optical signals carrying channels 2, 4, .. n-1 is transmitted through the etalon. After the two signals are separated, further separation can be achieved by using conventional dichroic filters.

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